

R/010/60/011/011/001/001
A231/A126

AUTHOR: Voronca, A., Engineer

TITLE: The application stage of geophysical methods in drilling holes for the exploration and determination of the reserves of coal deposits in the USSR

PERIODICAL: Revista Minelor, v. 11, no. 11, 1960, 501 - 506

TEXT: The USSR widely uses the geophysical sampling for the exploration of coal deposits, performing yearly more than 3.1 million geophysical samplings. The drilled holes are examined by electric and radioactive sampling and many samples are extracted by the sidewall sampler for the determination of the stratigraphical columns and detection of coal. The used electric sampling methods are: apparent resistivity (KS), self-potential (PS), gradient of self-potential, produced potential (VP), bridge resistance (MC), electric currents (TK), and sliding contacts (MSC). The radioactive sampling methods are: natural gamma (GC), neutron-gamma (NGC) and gamma-gamma (GGC). The soil samples are taken with the sidewall sampler, which extracts 20 samples in one operation. The volume of a sample varies between 1 - 5 cu cm. Geophysical research conducted at a scale of 1 : 200

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serves for the detection of coal, completion of the stratigraphical columns and lithological horizonting of the profile. Geophysical research conducted at a scale of 1 : 50 serves for the determination of thickness and structure of coal strata. Electric sampling methods are used for the study of coal deposits in which the electric parameters of the coal are clearly distinguished from that of the other rocks, or rocks of similar parameters, but of non-important quantity. The detection of coal is accomplished by the KS and TK methods, and for details the VP and PS methods are used. An accurate quantitative interpretation is accomplished by the PS gradient method. Coals of high resistivity, i.e., the majority of the deposits of Donbas, Kuzbas, Pechora Basin, Karaganda, Lvov-Volyn, Sakhalin Island, etc., as well as the anthracite coal deposit of the Donets Basin are detected by these methods. The radioactive methods combined with electric methods are used for the detection of mineral coal and lignite deposits with a high electric resistivity, and lignite deposits with a high content of ash. The used radioactive methods are GC, NGC and GGC. The latter method was introduced by the USSR in 1955, supplying at present the best results in the detection of the coals in drilling holes. For details, the radioactive methods are completed by KS and PS electric measuring, rarely by TK and gradient PS methods. The coal deposits of Kizelo and Chelyabinsk, as well as some deposits of the Moscow basin are examined by radio-

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active methods whereas the coal deposits of the Western Urals, some sections of the Donets and Moscow basins and of the Tomi-Usink Region in Kuzbas are detected by the combined method. The use of a complex geophysical process expanded by the sidewall sampling method, guarantees the identification of the coal strata, determination of their thickness, structure and depth. Correlation profiles constructed on the bases of geophysical diagrams also permit in many cases the determination of tectonic disturbances, their character and the synonymization of the coal strata. The comparing studies proved that the geophysical sampling for the determination of thickness, structure and location depth is more accurate than the mechanic sampling. In coal basins where the use of geophysical methods is more advanced, the qualitative determination of the coals by geophysical methods is at least as accurate as the determination by mining work. In the USSR, the evaluation of the thickness of the coal strata is estimated with an average error of minus 18% to the real thickness. In some deposits these subestimations range up to 55% (Pechora Basin). In some coal basins (Pechora, Southern Yakutia and Kusnetsk), the coal reserves are calculated only on the basis of results supplied by the geophysical sampling. Based on the practical importance of the geophysical sampling, the State Commission of Reserves of the USSR has established: "Utilization Conditions of geophysical sampling data for the calculation of coal reserves".

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The State Commission determines that in case the geophysical sampling fulfills the respective conditions, it should be considered as a basic method for the determination of the necessary indexes for the calculation of the coal reserves. With regard to the importance and accuracy, the investigation of coal deposits by geophysical methods in the USSR presents three categories: 1 - Deposits where the use of geophysical methods is more advanced, obtaining by them: a) detection of thickness, structure and location depth of coal strata; and b) qualitative parameters of the coals. 2 - Deposits where the use of geophysical methods supplies with accuracy: a) detection of the thickness structure and location depth of coal deposits; and b) quality parameters; they are obtained by analyzing the samples taken with the sidewall sampler; 3 - Deposits where the use of geophysical methods is not sufficiently developed and no accurate data on the detection of thickness, structure and depth of strata can be given. But also in this situation, every drilling hole is geophysically sampled. The results obtained according to point 1 and 2, serve for the calculation of the coal reserves. On the basis of the results obtained, a method for the application of data supplied by geophysical sampling for the calculation of coal reserves has been worked out. In September 1958, M. S. Speranskiy forwarded to the Coal and Bituminous Slate Section of the Commission of Geological Experts at the State Commission of Reserves, his report: "Pos-

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sibilities and Conditions for the Use of Geophysical Sampling Data in the Calculation of Explored Coal Reserves". On the basis of this report, the State Commission of Reserves worked out and approved on November 15, 1958: "Application Conditions of Geophysical Sampling Data in the Calculation of Coal Reserves". The standards include the use of geophysical sampling procedures and the qualities which have to be fulfilled, as follows: The geophysical sampling is a basic method for the determination of some of the quantitative parameters of the coal in beds where the geophysical method proved to be equal, or superior to the mechanical sampling. In certain conditions it permits the identification of the presence of coal strata and the determination of the thickness, structure and location depth. The application degree of the data is determined by the particularities of the physical properties of the coals and rocks in their beddings and roofings; by the indices characterizing the thickness, structure and qualities of the coal; and by the accuracy of the results obtained by geophysical sampling. The degree of accuracy is determined by comparative studies between the results of the geophysical and mechanical samplings and of the mining works. The obligatory conditions for the use of data obtained by geophysical measurements on thickness, structure and "batimetry" of the strata are described. The advantages of the geophysical sampling against the mechanical sampling are: reduction of the costs by 30 - 50% per linear meter; doubling of the drilling speed; high

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geological results and complete stratigraphic columns; more simple examination of the geophysical graphs. On the basis of the Soviet results, the author recommends the intensification of the application of geophysical methods in Rumania: Exchange of experience with the USSR and other socialist countries should be carried out. There are 2 tables and 6 Soviet-bloc references.

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VORONCA, A.

Application of geophysical measurements in wells for coal-prospecting purposes. p. 63.

REVISTA MINELOR. (Ministerul Minelor, Ministerul Industriei Petrolului si Chimiei, Directia Exploatarilor Miniere si Asociatia Stiintifica a Inginerilor si Tehnicienilor din Romina) Bucuresti, Romania. Vol. 10, no. 2, Feb. 1959.

Monthly List of East European Accessions (EEAI) IC, Vol. 8, no. 7, July 1959

Uncl.

VORONCA, A.

Results obtained in the exploration of coal deposit by means of boring with the application of geophysical methods. p. 403.

REVISTA MINELOR. (Ministerul Minelor, Ministerul Industriei Petrolului si Chimiei, Directia Exploatarilor Miniere si Asociatia Stiintifica a Inginerilor si Tehnicienilor din Romania) Bucuresti, Rumania. Vol. 10, no. 10, Oct. 1959

Monthly list of East European Accessions (EEAI) LC Vol. 9, no. 2, Feb. 1960

Uncl.

VORONCA, A., CONSTANTINESCU, M.

Character of the slide prism under conditions of the space problem, when narrow faces are subjected to earth pressure. p. 205

REVISTA CONSTRUCTIILOR SI A MATERIALELOR DE CONSTRUCTII. (Asociatia Stintifica a Inginerilor si Tehnicienilor din Romania si Ministerul Constructiilor si al Materialelor de Constructii) Bucuresti, Rumania. Vol. 10, No. 4, April 1958

Monthly List of East European Accessions (EEAI) LC, Vol. 9, No. 2, Feb. 1960
Uncl.

VORONCA, A.

14 21T26

RUMANIA/Engineering

Jan/Feb 1947

Petroleum - Well Drilling
Petroleum Industry

"Prospecting the Aninosa-Sateni-Ungureni Structure by
Means of Prahova Borehole No 501," A. Voronca, 5 pp

"Monitorul Petrolului Roman" Vol XLVIII, No 1/2 .

Existence of a petroleum-bearing structure confirmed;
second boring is in progress at the intersection of
the Targoviste-Doicesti routes. Technical data on the
boring and yield; geologic profile sketched;
laboratory analysis of Miocene gas.

21T26

VORONCA, Al., ing.; ANTONIER, M., ing.

Analysis of the electric power spectrum of gamma radiation
brought forth in wells. Rev min 12 no.6:276-279. Je '61.

VORONCHENKO, A.N., inzhener.

Installing fireproof partitions in cable tunnels of operating
electric power plants. Elek.sta. 25 no.8:50-51 4g '54. (MLRA 7:9)
(Electric power plants--Fires and fire prevention)

BRODSKIY, V.B.; BELITSKIY, B.M.; VORONCHEV, A.T.; KONYAKHIN, N.V.;
STAROSTIN, Yu.N.

Radio sounding of a plasma moving inversely to the electrodynamic
acceleration in a coaxial accelerator. Zhur. tekhn. fiz. 33
no.4:426-428 Ap '63. (MIRA 16:9)
(Oscillography) (Plasma (Ionized gases))

VOLONCHEV, Tikhon Aleksandrovich; IVANUSHKO, N.D., red.; SVESHIKOV, A.A.,
tekhn.red.

[Impulse thyratrons] Impul'snye tiratrony. Moskva, Izv-vo
"Sovetskoe radio," 1958. 163 p. (MIRA 11:4)
(Thyratrons)

PHASE I BOOK EXPLOITATION

593

Voronchev, Tikhon Aleksandrovich

Impul'snyye tiratrony (Pulse Thyratrons) Moscow, Izd-vo "Sovetskoye radio", 1958. 163 p. Number of copies printed not given.

Ed.: Ivamushko, N. D.; Tech. Ed.: Sveshnikov, A. A.

PURPOSE: This monograph is addressed to those engaged in the design of various installations in which pulse thyratrons are used, as well as to designers engaged in the development of pulse equipment.

COVERAGE: The monograph is concerned with the design and operating specifications of pulse thyratrons. The book contains data on research done on various physical processes and can be divided into three sections: 1) physical processes taking place in the thyatron during the pre-conduction part of the period; 2) physical processes taking place during the conduction part of the period; 3) physical processes taking place during the postconduction period. Some special problems associated with thyatron operation are discussed as well as pulse-thyatron manufacturing technique. The present work also deals with the results of research on the physical

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processes taking place in thyratrons, obtained in development of the 1950 model TII-130/10 high-frequency pulse thyatron. This thyatron has a new firing system which ensures high firing stability, short charge-buildup time, and operates at a pulse repetition rate of up to 30,000 cps. The following Soviet-produced equipment is discussed: the TII-35/3, TII-50/5 and TII-130/10 thyratrons and the TII-3/1 pulse thyatron all of them developed by the author; the type 25-I single beam oscilloscope; the TII-2 thyatron, mentioned as the first pulse thyatron to be developed in the Soviet Union; the TII-260/12 thyatron; the TI-0.3/12 thyatron (filled with krypton); and the TZ-0.1/1.3 thyatron. Some of these thyratrons are enumerated in a table with additional variants of the TII type. The author expresses thanks to Professor I. L. Kaganov for the supervision of the work, to Ya. S. Itsokhi, Doctor of Technical Sciences for valuable suggestions in reviewing the manuscript, and to Engineers M. V. Daitriyeva and L. I. Freyberg for their help. There are 23 Soviet references (including 1 translation), 1 German, and 12 English.

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VORONCHEV, TIKHON ALEKSANDROVICH

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Impul'syye Tiratrony Impulse.
Thyratrons Moskva, "Sovetskoye Radio",
1958

163 p., Diagra. Graphs
"Literatura" : p. 162-163

GREVENSHCHIKOV, D.; ~~VORONCHIKHIN, D.A.~~, gvardii polkovnik, redaktor;
GRECHIKHO, G.V., redaktor; MIASNIKOVA, T.P., tekhnicheskii redaktor.

[Cunning and resourcefulness in warfare] Voennaya khitrost' i
smetka. 3-e izd.-Moskva, Voen.izd-vo Ministerstva oborony SSSR
1955. 66 p. [Microfilm] (MLA 8:10)
(Tactics)

KURBET'YEV, G.N.; KONOVALOV, M.I.; VORONCHIKHIN, G.A.

The performance of flotation machines. TSvet. met. 38 no. 12:
23-24 D '65 (MIRA 19:1)

KURBET'YEV, G.N.; KONOVALOV, M.I.; VORONCHIKHIN, G.A.; BURDA, S.L.

Industrial testing of sodium cyanide as a substitute for black
cyanide. TSvet. met. 38 no.9:25-26 S '65.

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VORONCHIKHIN, Gennadiy Ivanovich; KONDRAT'YEV, Konstantin Pavlovich;
OGLOBLIN, L.A., red.; MOSHAROVA, T.P., red. izd-va; TIKHONOVA,
Ye.A., tekhn. red.

[Driver of lift trucks] Voditel' pogruzchikov. Moskva, Izd-
vo "Morskoi transport," 1963. 183 p. (MIRA 16:7)
(Fork lift trucks)

KOLOS, N.D., inzh.; VORONCHIKHIN, G.P., inzh.

Simple method for preparing metal surfaces for painting.
Mashinostroenie no.1:76-78 Ja-P '65.

(MIRA 12:4)

ATKRONA, I.R.; KOPPELA, N.; F. HUNYEN, I.F.; E. HUNYEN, I.F.;
YHARONIA, I.

Improvement of the technology of preparing protein hydrolyzates.
Inzh. gosst. i. perst. kr. 10 no. 1:50-53 1. 1962.

(HRA 28.6)

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Akademicheskogo Instituta prikladnykh khim. (I. I. V.
Bogdanov), Khark.

L 14991-66 EWT(1)/EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) IJP(c) MJW/JD

ACC NR: AP5028570 (N)

SOURCE CODE: UR/0126/65/020/005/0793/0795

AUTHOR: Voronchikhin, L. D.; Zavadskiy, E. A.; Fakidov, I. G.

ORG: Institute of Physics of Metals AN SSSR (Institut fiziki metallov AN SSSR)

TITLE: Superparamagnetism in austenitic steels 4,44,55

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 5, 1965, 793-795

TOPIC TAGS: austenitic steel, paramagnetism, magnetization, magnetic field, magnetic moment, metal physical property, metal physics

ABSTRACT: ^{21.44, 55} Superparamagnetism was studied in 40Kh2N20 and 50Kh2N22 austenitic steels in order to determine the average magnetic moments and dimensions of the local ferromagnetic ordering regions (clusters). Magnetization curves are given both for constant magnetic fields and strongly changing ones. Sample dimensions were 1 mm (diameter) and 10 mm (length). The data showed that the experimental portions of the magnetization curves, corresponding to the values of the fields causing martensitic transformation in these steels, can be described by the Langevin function

UDC: 669.15 : 518.22

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ACC NR: AP5028570

$$\frac{\bar{I}}{I_m} = \frac{\bar{\sigma}}{\sigma_m} = L\left(\frac{MH}{kT}\right) \quad (1)$$

where k is Boltzman's constant, T is the absolute temperature, M is magnetic moment of the superparamagnetic particle and I_m is saturation magnetization of the sample. Satisfactory agreement of the experimental and calculated curves exhibit the utility of equation (1) for calculating the magnetic moments of particles. Two boundary cases were considered, corresponding to the conditions when $MH/kT \ll 1$ (weak field) and $MH/kT \gg 1$ (strong field). Equation (1) for the case when $MH/kT \ll 1$ reduces to

$$\bar{I} = \frac{NM^2}{3k} \frac{H}{T},$$

where N is the number of particles per cm^3 ; for the case when $MH/kT \gg 1$, the following was applicable:

$$\frac{\bar{I}}{I_m} = \frac{\bar{\sigma}}{\sigma_m} = 1 - \frac{kT}{M \cdot H}.$$

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ACC NR: AP5028570

The average dimensions of the particles were calculated to be $\bar{d} = 10$ angstrom. The conclusions substantiated the authors' hypothesis of the presence of paramagnetism in austenitic steels based on the calculated magnetic moments and the impossibility of attaining saturation even in fields as high as $150 \cdot 10^3$ oersteds. (orig. art. has: 3 figures.

SUB CODE: 11,20/

SUBM DATE: 30Jul65/

ORIG REF: 002/

OTH REF: 002

Card 3/3

31464-66 EIT(m)/I/EWP(t)/EII IJP(c) JD
ACC NR: AP6023111

SOURCE CODE: UR/0126/66/021/003/0436/0441

AUTHOR: Voronchikhin, L. D.; Fakidov, I. G.

ORG: Institute of Physics of Metals, AN SSSR (Institut fiziki metallov, AN SSSR)

79
B

TITLE: Determining the latent heat of martensite conversion induced in steel by a magnetic field

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 3, 1966, 436-441

TOPIC TAGS: magnetic effect, martensitic transformation, constant magnetic field, pulsed magnetic field, calorimetry, nickel steel, high temperature phenomenon

ABSTRACT: The authors study the thermal phenomena which accompany martensite conversion induced by a magnetic field in steels. The study confirms the previously known fact of stepwise formation of isolated martensite bodies and indicates that a similar mechanism of martensite conversion takes place regardless of the physical causes underlying the $\gamma \rightarrow \alpha$ conversion. A method is proposed for determining the latent heat of martensite conversion due to the effect of the magnetic field in 40Kh2N20 and 58Kh4N8S3M steels. The chemical composition of these steels is given in the table below. It is shown that both pulsed and constant magnetic fields may initiate this conversion. The advantages of the proposed method for determining the latent heat of austenite-to-martensite conversion in a magnetic field are discussed in comparison with the calorimetric method.

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UDC 548.53:538.65

31464-66
ACC NR: AP6023111

Steel	C	Mn	Si	Cr	Ni	Mo
40Kh2N20	0.39	0.64	0.7	1.96	19.75	--
58Kh4N853M	0.58	---	3.2	4	8.5	1.1

Orig. art. has: 1 figure and 2 tables. [JPRS]

SUB CODE: 11, 20 / SUBM DATE: 27Mar65 / ORIG REF: 004

Card 2/2 mu

Accession NR: A05015527

AUTHOR: Fakidov, I. I.

Zavadskiy, B. A.

field

of austenitic steel in a strong pulsed magnetic

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 6, 1985, 852-857

TOPIC TAGS: austenitic steel, martensitic transformation, magnetic phenomenon, metal physics, thermodynamic analysis, low temperature phenomena

ABSTRACT: Magnetization of austenitic steels 50Cr2Ni2, 50Cr2Ni3 and 4Kh2N20 was studied. The martensitic transformation took place under the action of a strong magnetic field. The dependence of magnetization of the steels on the value of a magnetic field impulse was measured at 100 K, as well as the dependence of the critical field H_c on frequency ν and the validity of the relation $2\pi H_c / (\nu + 1) = (S_1 - S_2) = \text{const}$ was established, where σ - magnetization of the sample in one pulse; S_1 and S_2 -

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ACCESSION NR: AP5016527

values of the entropy of both α and γ phases. The martensitic transformation caused by the strong magnetic field did not proceed at one definite field, but in a series of jumps, from which the first (at H_{M1}) appeared the greatest. The critical field H_c , at which the most intensive martensitic burst started, depended weakly on the duration of the magnetic impulse. Critical field dependency on temperature was in accord with the thermodynamic theory of phase transformations of the first order. Orig. art. has: 7 figures.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals AN SSSR)

SUBMITTED: 24Jul64

ENCL: 00

SUB CODE: MM, RM

NO REF SOV: 003

OTHER: 000

Card 2/2

VORONCHIKHIN, M.A., starshiy prepodavatel'

Undercutting cogs of a worm-gear wheel. Trudy DVPI 56 no. 17-26
'62. (MIRA 17:6)

VORONCHIKHIN, S. I., prof.

Role of bone perforation in the treatment of hematogenic osteomyelitis. Khirurgiia 38 no.5:38-43 My '62. (MIRA 15:6)

1. Iz kafedry fakul'tetskoy khirurgii (zav. - prof. S. I. Voronchikhin) Izhevskogo meditsinskogo instituta.

(OSTEOMYELITIS) (OSTEOTOMY)

VORONCHIKHEN, S. I.

Voronchikhen, S. I. - "On various cardiac bodies", Trudy Medinstituta (Izhiv. gos. med. in-t), Vol. VI, 1948, p. 95-102.

SO: U-4110, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 19, 1949).

VORONCHIKHIN, S. I.

Voronchikhin, S. I. " On regastroenterostomy," Trudy Medinstituta
(Izhev, gos. med. in-t(. Vol. VII, 1949, p. 294-96

SO: U-3850, 16 June 53, (Letopis, Zhurnal 'nykh Statey, No. 5, 1949)

VORONCHIKHIN, S. I.

Vorónchikhin, S. I. "On the amputation of the femur according to
Gritti-Stokes," *Izvestiya Medinstituta (Izhev. gos. med. in-t)*,
Vol. VII, 1949, p. 196-98

SO: U-3850, 16 June 53, (Letpis 'Zhurnal 'nykh Statey, No. 5, 1949)

VORONCHIKHIN, S.I., prof.

Nikolai Ivanovich Pirogov, the creator of the scientific principles
of surgery. Trudy Izhev.gos.med.inst. 13:3-25 '51. (MIRA 13:2)
(PIROGOV, NIKOLAI IVANOVICH, 1810-1881)

VORONCHIKHIN, S.I., prof.

Technic of forming Pavlov's pouch. Trudy Izhev.gos.med.inst. 13:548-
552 '51. (MIRA 13:2)

1. Zaveduyushchiy kafedroy topograficheskoy anatomii s operativnoy
khirurgiyey Izhevskogo medinstituta.
(LABORATORY ANIMALS) (STOMACH--SURGERY)

WORDNCHIKHIN, V.A.

Change in the blood picture following osteoperforation in
hematogenic osteomyelitis. Trudy Izhev.gos.med.inst. 21:
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(MIRA 1961)

1. Kafedra obshchey khirurgii (zav. - prof.N.F.Rupasov)
Izhevskogo meditsinskogo instituta.

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RT-1630 (On the composition of the deposits precipitating in soda production apparatus, and on measures for combating them) O sostave osadkov, otlagivushchikhsia v apparature sodovogo proizvodstva, i o merakh bor'by s nimi.
ZHURNAL KHIMICHESKOI PROMYSHLENNOSTI, 13(24): 1486-1489, 1936

MAZUNIN, N., mayor; ~~VORONCHIKHIN, D.A.~~ gvardii podpolkovnik, redaktor;
MOISEYENKO, D.G., tekhnicheskii redaktor

[The Volga flotilla in the Great Patriotic War] Volzhskaya voennaya
flotiliya v Velikoi Otechestvennoi voine. Moskva, Voen. izd-vo
Ministerstva vooruzhennykh sil SSSR, 1947. 39 p. [Microfilm]

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Politicheskoye upravleniye.

(Volga River--World War, 1939-1945--Naval operations)

1ST AND 2ND ORDERS

PROCESS AND PROPERTIES INDEX

CO

Determination of carbonic acid ion in the liquors of sodium carbonate production with the aid of the Scheibler apparatus. V. H. Voronchikhin. Zashchita Lab. 6, 234-H(1937).--A discussion, with math. treatment, of the detn. of CO_3^{--} with the aid of a modified Scheibler app. (illustrated). Chas. Blane.

COMMON ELEMENTS

COMMON VARIABLE AGENTS

OPEN MATERIALS INDEX

ASAC-SEA METALLURGICAL LITERATURE CLASSIFICATION

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1st AND 2nd PAGES

PROCESSES AND PROPERTIES INDEX

7

Ch

Determination of carbonic acid ion in the liquors of sodium carbonate production with the aid of the Schablier apparatus. V. H. Voronchikhin. *Zhurnal Khim. 6, 244-R(1937)*.—A discussion, with math. treatment, of the detn. of CO₂ with the aid of a modified Schablier app. (illustrated). *Chas. Blanc*

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

1930-1939

1940-1949

1950-1959

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197 AND THE 20TH CENTURY

REPRODUCED FROM DOCUMENTS

8

The use of distiller liquid in soda factories. V. R. Voronchikhin. *J. Chem. Ind.* (U. S. S. R.) 15, No. 6, 317 (1938).—The use of waste distn. resid. contg. CaCl₂ for slaking lime gives poor results in the lab., but is better on a factory scale.
H. M. Leicester

COMMON ELEMENTS
COMMON VARIABLE METALS

OPEN MATERIALS INDEX

ASM-AIA METALLURGICAL LITERATURE CLASSIFICATION

FROM SOURCE

197 AND THE 20TH CENTURY

CA

The composition of the precipitate deposited in soda-production apparatus and measures for avoiding it. H. E. Voronchikhin. J. Chem. Ind. (U.S.S.R.) 16, No. 8, 17-21(1939) [R. C. A. 31, 2304]. The deposit in various parts of the app. consists of varying proportions of CaCO_3 and MgCO_3 , mixed with NaCl and Na_2CO_3 or NaHCO_3 . Fine crystals of CaCO_3 do not tend to accumulate, but may collect around dust particles to form thick layers. Therefore, the liquid should be covered at incrustations. Mg compounds cause incrustation most actively, all times. Mg should be removed as completely as possible, and Mg should be removed as completely as possible. Pptd. $\text{Mg}(\text{OH})_2$ is as bad as sol. Mg salts if it is allowed to circulate with the brine, since it redissolves and ppts. as MgCO_3 .

H. M. Leicester

ASB-SLR METALLURGICAL LITERATURE CLASSIFICATION

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The purification of brines for ammonia-soda production. V. K. Yermolovskii. *J. Chem. Ind. (U. S. S. R.)* 19, 326-31 (1957). The relative advantages of brine of Mg by NaOH , Ca(OH)_2 , $\text{Ca(OH)}_2\text{-Na}_2\text{CO}_3$ and NaOH-NaHCO_3 are discussed. H. M. Laskov

10

18

THE cardification of soda solutions with granular li.
V. M. Voronchikhin, J. Chem. Ind. (U. S. S. R.)
1843-50(11377); C. A. 36, 3173. Tech. details are
given for the prep. of NaOH by addn. of powd. li.
The speed of the process is increased by this method.
H. M. Tolman

ASB-564 METALLURGICAL LITERATURE CLASSIFICATION

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<p>CA</p> <p>The preparation of sodium hydroxide from soda solutions by granular lime. V. E. Voronchikhin and G. S. Plakhotnyuk. <i>J. Chem. Ind. (Moscow)</i> 1934, No. 10, 33-9. When soda solns. are treated with $\text{Ca}(\text{OH})_2$, the CaCO_3 formed takes too long to settle. Addn. of Fe_2O_3 or starch to the soln. increases the rate of settling. Better results are obtained if granulated lime is added to the soda with mech. stirring. The best lime grains are prepd. by triturating slaked lime with strong soda soln. and allowing the paste to stand in a closed vessel. The mass soon becomes solid and can be easily broken up into small grains.</p> <p>H. M. Leicester</p>																										18																																																																																																																																	
ASB-52.5 METALLURGICAL LITERATURE CLASSIFICATION																																																																																																																																																											
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18

1ST AND 2ND COVERS

PRECEDENCE AND PRESENTS (10-1)

Can

The composition of the precipitate found in soda production apparatus and measures for avoiding it. V. R. Vornik, *Chim. Ind. (U.S.S.R.)* 13, 1486 (1937).

The ppt. in the still is anhyd. CaSO_4 . Its presence there can be avoided by raising the temp. of the app. just before the still to 110-15°, thus pptg. anhyd. CaSO_4 at that point, or by lowering the temp. of the whole app. to 93°, where $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ will ppt. H. M. Leicester

ASME METALLURGICAL LITERATURE CLASSIFICATION

ISSUED 54

ISSUED 510 CWP JAI

DISPOSITION

RE-CLASSIFIED 100 100

co

The preparation of sodium hydroxide from soda solution by granular lime. V. F. Veronichikhin. J. Chem. Ind. (Moscow) 13, 164 R(1907) cf. C. A., 20, 1215.

When H₂O₂, some NaOH is added, rapidly or slowly, to Ca(OH)₂, produced in dense and settles in the soln. at a moderate speed. If cold H₂O is added rapidly, the Ca(OH)₂ is porous, but settles slowly. The best time for the prep. of NaOH is obtained by slow add. of cold H₂O. The Ca(OH)₂ which is formed is porous and settles rapidly.
R. M. Leicester

ASH-SLA DETAILING LITERATURE CLASSIFICATION
BOOK DIVISION

PROCEDURES AND PROPERTIES INDEX		18	
CA	Sodium bicarbonate. V. E. Varshchikhin. U.S.S.R. 61,894, Aug. 31, 1949. Cryst. $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ is made to cascade in a vertical chamber provided with inclined shelves. Countercurrent to the cascading crystals is passed CO_2 or its mixt. with dry air preheated to 60° . NaHCO_3 is formed and simultaneously dried. To prevent caking, the incoming $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ is mixed with freshly obtained NaHCO_3 . M. Hosh		
ASTM A 1.1 A METALLURGICAL LITERATURE CLASSIFICATION		B-1 T-2 E-3 A-4 V-5	
FROM: 07/19/50	INTROD: 11/19/50	REVISION: 1	DATE: 11/19/50

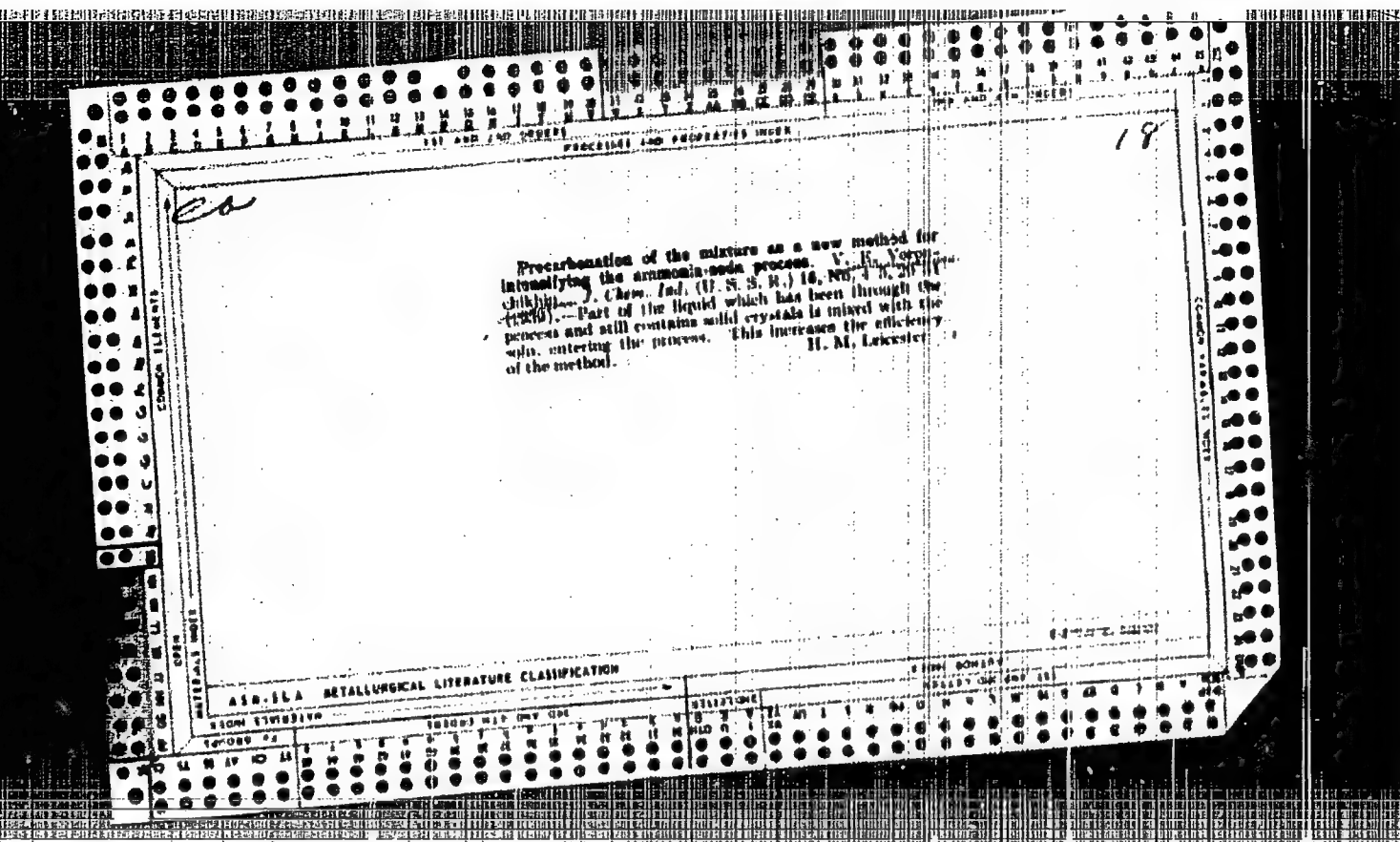
2

18

Repeted ignition of the hematite filings in the production of caselle. V. H. Voroshchikhin. *J. Chem. Ind. (U. S. S. R.)* 17, No. 11, 2786(1960).--When the CaCO_3 pptd. by treating Na_2CO_3 with CaO , is ignited to CaO , which is used again, the quality of the CaO gradually falls off, and after 8-10 ignitions, it must be discarded. The CaCO_3 from ignited CaO settles more rapidly from NaOH soln., but Al compds. tend to accumulate in the NaOH .

H. M. Leicester

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



VORONCHIKHIN, V.G.; YUSHKOV, I.S.

Changing the design of the slag tank. Sbor. rats. predl.
vnedr. v proizv. no.2:58-59 '61. (MIRA 14:7)

1. Lipetskiy metallurgicheskiy zavod "Svobodnyy Sokol".
(Foundries---Equipment and supplies)

VORONCHIKHIN, V. M.

TITOV, B.M.; VORONCHIKHIN, V.M.

Centrifugal water trao. Ger.zhur. no.9:74 S '57. (MIRA 10:9)

1. Tomskiy politekhnicheskii institut imeni S.M.Kirova.
(Air compressors)

L 36276-65 EWP(d)/EWP(v)/EWP(r)/EWP(h)/EWP(1) PT-4

ACCESSION NR: AP5008231

S/C205/65/010/005/0105/0105

AUTHOR: Voronchikhin, V. M.

TITLE: Automatic regulator for pump shaft rotation rate. Class 60, No. 158997

SOURCE: Byulleten' izobreteniy i tovariyskh znakov, no. 5, 1961, 101

TOPIC TAGS: pneumatic system, pump, shaft

ABSTRACT: This Author Certificate presents an automatic regulator for the shaft rotation speed of a pump with a pneumatic drive. The pump consists of a balanced piston slide valve and an elastic diaphragm rigidly connected to it by a spring-loaded stem and placed in a closed chamber (see Fig. 1 of the Enclosure).

To control the rotation rate of the pneumatic drive shaft during idling of the pump, the chamber with the diaphragm is connected to the pressure line of the pump. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 25May60

ENCL: 01

SUB CODE: 1F

NO REF SOV: 000

OTHER: 000

Card 1/4

COUNTRY : USSR
CATEGORY : Cultivated Plants. Fruits. Berries. 14
ABS. JOUR. : RZhBiol., No.23, 1958, No. 104864
AUTHOR : Voronchikhina, A.
INST. : ~~INSTITUTE OF BOTANY, USSR ACADEMY OF SCIENCES~~
TITLE : Plum Variety - Nagrada.
ORIG. PUB. : Sad i ogorod, 1958, No. 5, 60
ABSTRACT : No abstract.

CARD: 1/1

157

VINOKUROVA, Ye.A. [deceased]; VORONCHIKHINA, A.P.; RUTMAN, Sh.P. [deceased]

Investigating the coking capacity of Urgal and Suchan coals.
Trudy DVFAN SSSR. Ser. khim. no.6:29-33 '62. (MIRA 17:8)

VORONCHIKHINA, A.P.

Determining the output of coke by-products from Ural and
Suchan coals. Trudy DV7AN SSSR, Ser. khim, no. 6:39-43 '62.
(MIRA 17:8)

USSR/Cultivated Plants - Fruits. Berries.

M-6

Abs Jour : Ref Zhur - Biol., No 7, 1958, 30039

Author : Voronchikhina, A.Ya.

Inst : -

Title : A Valuable Plum Variety.

Orig Pub : Sad i ogorod, 1957, No 6, 46-48

Abstract : According to variety testing data gathered at the Voronezh Experimental Fruit and Berry Station, the best commercial plum variety for the Voronezhskaya Oblast' is the Kolkhoz Reine-Claude.

Card 1/1

VORONCHIKHINA, K.A.

Improving the processing of leather raw materials. Kosh.--
obuv. prom. 5 no.6:37-39 Jo '63. (MIRA 16:6)

(Leather)

VORONCHIKHINA, M.G.; KEL'TSEV, N.V.; STAROVOYTOVA, A.F.; KHALIF, A.L.

Obtaining solvents from casing-head gasolines. Trudy VNIIGAZ no.12:
159-163 '61. (MIRA 15:1)

(Gasoline) (Solvents)

TITOV, B.M., dotsent; VORONCHIKHIN, V.M., inzh.; TIMOFEEV, V.A.,
inzh.; UDUT, V.S., inzh.

Some characteristic defects of compressor plants in Kuznetsk
Basin mines. Izv.vys.ucheb.zav.; gor.zhur. 6 no. 12:132-140
'63. (MIRA 17:5)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskii
institut imeni S.M.Kirova.

MELIK-GAYKAZYAN, V.I.; BAYCHENKO, A.A.; VORONCHIKHINA, V.V.; LIVSHITS, G.L.;
SOROKA, V.I.; RAYVICH, I.D.; KHARKHARDIN, P.P.

Emulsification of flotation oil reagents under industrial
conditions and evaluation of the dispersion properties of the
obtained emulsions. Koks i khim. no.3:9-13 '64. (MIRA 17:4)

1. Tomskiy politekhnicheskii institut (for Voronchikhina).
2. Nikitovskaya ugleobogatitel'naya fabrika (for Rayvich).
3. Gorlovskiy koksokhimicheskiy zavod (for Kharkhardin).

MELIK-GAYKAZYAN, V.I.; BAYCHENKO, A.A.; VORONCHIKHINA, V.V.

Determining the parameters which characterize the flotation activity of oil reagents. Koks i khim. no.8:13-16 '62. (MIRA 17:2)

1. Tomskiy politekhnicheskii institut.

VORONCHIKHINA, Z.N., Cand Agr Sci -- (diss) "Peculiarities ^{of growth}
of the root system of gooseberry ^{and its interconnection} ~~and~~ its interconnection
with above-ground organs under conditions of Moskovskaya
Oblast." Mos, 1958, 16 pp (Mos Order of Lenin of Agr
Acad im K.A. Timiryazev) 110 copies (KL, 23-58, 109)

VORONCHUK, V.I.

Laryngeal cyst in a newborn infant. Vest.oto.-rin. 20 no.4:101-102
(MIRA 11:7)
J1-Ag'58

1. Iz kafedry sudebnoy meditsiny (zav. - dots. K.Ye. Pirogova)
Dnepropetrovskogo meditsinskogo instituta.

(LARYNX, cysts,
in newborn inf. (Rus))
(INFANTS, (NEWBORN)
laryngeal cysts (Rus))

VORONCOV, Lav, inz.; SILHARD, Vladimir, inz.; JELENIC, Jernej, inz.;
RANISAVLJEVIC, Toma, inz.; KLANCNIK, Mario, inz.

Main features and conclusion of the discussion. Kom ind 12
no.4:254-263 Ap '63.

1. Savjetnik Jugoslavenskog gradevinskog centra, Beograd (for
Voroncov). 2. Savjetnik i republički gradevinski inspektor SRH,
Zagreb (for Silhard). 3. Šef projektantske grupe za hidrotehničke
radove montažnog poduzeća "Pobeda", Beograd (for Ranisavljevic).

VORONEL', A.V.

Equation for a melting curve. Zhur. tekhn. fiz. 28 no.11:2630-2634
N '58. (MIRA 12:1)

(Melting points) (Heat of fusion)

VORONEL', A.V.; SNIGIREV, V.G.; CHASHKIN, Yu.R.

Behavior of the heat capacity C_v of pure substances near the critical point. Zhur. eksp. i teor. fiz. 48 no.3:981-984. Mr (MIRA 18:4) '65.

1. Institut fiziko-tehnicheskikh i radiotekhnicheskikh izmereniy.

VORONEL', A.V.; GARBER, S.R.; SIMKINA, A.P.; CHARKINA, I.A.

Heat capacity of Gd near the Curie point. Zhur. eksp. i teor.
fiz. 49 no.2:429-432 Ag '65. (MIRA 1:9)

1. Institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy.

VORONEL', A. V.

S/120/60/000/03/049/055
E073/E535

82006

5.1400

AUTHORS: Astov, D. N. and Voronel', A. V.

TITLE: A BellowsType Regulation Valve for Operation at Pressures
up to 150 atm γ

PERIODICAL: Pribery i tekhnika eksperimenta, 1960, No 3, p 149

ABSTRACT: In an earlier paper (Ref 1), R. A. Alikhanov described the design of a valve of very low weight which permits continuous regulation of small quantity gas flows at pressures up to 4 atm. This valve has been modified by the authors of this paper to permit regulating gas flows with pressures up to 150 atm. This bellows type valve is of small dimensions and due to a special configuration of the needle the initial gas flow can be regulated between 0.03 and 0.05 cm³/min at normal pressure. Up to the maximum flow, which is 2 to 3 cm³/min, the flow rate can be regulated with an accuracy of 0.1 to 0.2 cm³/min for a pressure gradient of 150 atm. In the case of lower pressure gradients the accuracy of the regulation can be made higher. The valve was

Card 1/2 tested with hydrogen up to pressures of 150 atm. X

pa

82006

8/120/60/000/03/049/055

E073/E535

A Bellows Type Regulation Valve for Operation at Pressures up to 150 atm

Acknowledgments are expressed to R. A. Alikhanov and V. N. Kostyukov for commenting on the design of the individual components. There are 1 figure and 1 Soviet reference.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tehnicheskikh i radiotekhnicheskikh izmereniy X
(All Union Scientific Research Institute for Physics, Technology and Radio Engineering Measurements)

SUBMITTED: April 2, 1959

Card 2/2

L 63961-65 ENT(m)/EFF(c)/EFF(n)-2/EXP(-1)/EXP(b) IJE() .D
 ACCESSION NR: AP5008712 S/0056/65/148/003/0981/0981
 AUTHOR: Voronin, A. I.; Smirnov, V. G.; Chashkin, Yu. B.
 TITLE: The specific heat of pure substances close to the critical point
 SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 3, 1965, 981-984
 TOPIC TAGS: argon, nitrogen, oxygen, specific heat measurement

ABSTRACT: The specific heat of argon of critical density was measured very carefully in temperature intervals down to approximately 0.02K. Since there are considerable discrepancies in the literature on the critical density of argon, the measurements were made at several densities close to critical. The quantity of gas in the calorimeter was determined by weighing, and the measurement error did not exceed 0.1%. Tables are given for densities of 0.533, 0.530, and 0.538 g/cm³. It was found that 0.533 g/cm³ is closest to the critical density. Curves are given for specific heat as a function of temperature for argon, nitrogen, and oxygen. The curves for argon show a sharp reduction in slope with increasing density from the critical density. The authors thank A. P. Solov'ev, V. A. Popov, V. V. Sobolev, I. Kh. Na, and

Card 1/2

L 63961-65

ACCESSION NR: AP5003762

V. G. Borbunova for help with the measurements." Orig. art. has: 2 figures and 3 tables.

ASSOCIATION: Institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy
(Institute of Physicstechnical and Radio technical Measurement)

SUBMITTED: 28Dec64

ENCL: 00

SUB CODE: TD 10

NO REF SCW: 003

OTHER: 002

AID PRST: 407

Card 2/2

VORONEL', A.V.; GITERMAN, M.Sh.

Hydrostatic effect at the critical point in a binary mixture.

Zhur. eksp. i teor. fiz. 48 no.5:1433-1436 Mj '65.

(KIRA 13:7)

VORONEL', A.V.; CHASHKIN, Yu.R.; POPOV, V.A.; SIMKIN, V.G.

Measurement of the heat capacity C_v of oxygen near the critical point. Zhur. eksp. i teor. fiz. 45 no.3:828-830 S '63.
(MIRA 16:10)

1. Institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy.

(Oxygen—Thermal properties)

84426

S/056/60/039/004/0.4/048
B006/B056

24.5400

AUTHORS: Voronel', A. V., Giterman, M. Sh.

TITLE: The Hydrostatic Effect Near the Critical Point of a Liquid

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
Vol. 39, No. 4(10), pp. 1162 - 1163

TEXT: Near the critical point of a pure substance, its compressibility increases to an unlimited extent; therefore, already a slight change of pressure, caused by the pressure of the upper layers of the liquid upon the lower ones, may be of essential importance. For this case, the authors theoretically investigated the curves of state $p(V)$ and $\rho(V)$. The change in pressure with height is given by $dp = (\mu g/V)dh$, where μ is the specific volume at the height h , and μ is the molecular weight. If p and V deviate only little from the critical values, then, if $T = T_c$, $-dh/dV = (B/2\mu g)V(V-V_c)^2$ and $V = V_c - \alpha(h-h_0)^{1/3}$ with $\alpha = (6\mu g/BV_c)^{1/3}$, where h_0 denotes the integration constant which gives the height at which

Card 1/3

84426

The Hydrostatic Effect Near the Critical Point of a Liquid

S/056/60/039/004/044/048
B006/B056

the critical conditions are satisfied; $B = (\partial^3 p / \partial V^3)_T$. The mean specific

volume in the entire vessel is experimentally measurable, and so is the pressure at a certain level. If p_0 predominates at $h=0$, one obtains

$$V_{\text{mean}} = \frac{1}{H} \int_0^H v(h) dh = v_c - \frac{3}{4H} [(H-h_0)^{4/3} - h_0^{4/3}].$$

A numerical estimate shows that for all substances at $0 < h_0 < H$ and $H \sim 10$ cm, $(p_0 - p_c)/p_c \sim 10^{-4} - 10^{-5}$,

i.e., p_0 may be put equal to p_c . As B is very small, V_{mean} may be expected to deviate considerably from v_c at $p_0 \approx p_c$. $|V_{\text{mean}} - v_c|$ attains its

maximum value at $h_0=0$ and $h_0=H$. In the case of coexistence of liquid and vapor, the $p(V)$ and $T(V)$ curves, respectively, show a straight part of

the width $\Delta = \frac{3}{2} (6\mu g H / B V_c)^{1/3}$. This curve is, besides the ordinary curve,

shown in a diagram. Such a shape has actually been observed in the case of xenon, ethane, and ethylene. For xenon, the ratio of the vessel

Card 2/3

84426

The Hydrostatic Effect Near the Critical
Point of a Liquid

S/056/60/039/004/044/048
B006/B056

heights in two experiments was $H_1/H_2 = 19 \text{ cm}/13 \text{ cm} = 1.46$ and
 $(\Delta_1/\Delta_2)^3 = 1.57$, and for ethylene $H_1/H_2 = 2.5$ and $(\Delta_1/\Delta_2)^3 = 2.56$; these
data agree well with the formula for Δ . From an experimental determina-
tion of Δ it is possible to determine B from this formula. Thus one
obtains for xenon, if $H = 19 \text{ cm}$, $\Delta = 0.20 \text{ g.cm}^{-3}$, $B \approx 4 \cdot 10^{-5} \text{ atm.cm}^9$. The
authors thank M. Ya. Azbel' for discussions. There are 1 figure and
5 references: 2 Soviet and 3 Canadian.

ASSOCIATION: Institut fiziko-tekhnicheskikh i radiotekhnicheskikh
izmereniy (Institute of Physics, Technology, and Radio
Engineering Measurements)

SUBMITTED: July 26, 1960

X

Card 3/3

VORONEL', A.V.

Heat capacity of xenon near the critical point and the
Zhur. fiz. khim. 35 no. 4:958-959 Ap '61.
(Xenon—Thermal properties)

value $\left(\frac{\partial^3 \eta}{\partial v^3}\right)_{T_k}$
(MIRA 14:5)

AD Nr. 991-6 17 June

MINIATURE RESISTANCE THERMOMETER (USSR)

Voronel', A. V., and V. V. Shchekochikhina. Pribory i tekhnika eksperimenta, no. 2, 1963, 181-182. S/120/63/000/002/041/041

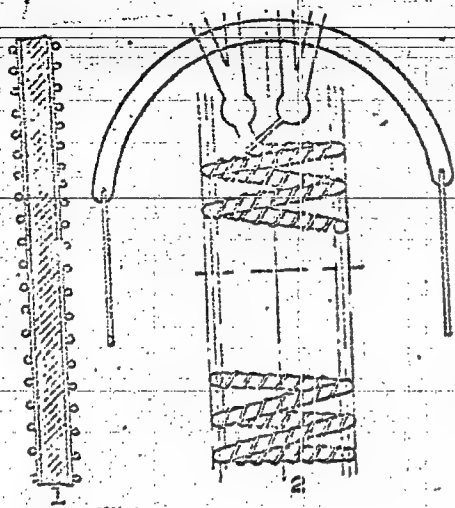
The All-Union Scientific Research Institute for Physicotechnical and Radio Engineering Measurements has developed a frameless platinum resistance thermometer which is greatly reduced in size and in weight. The sensing

Card 1/3

AID Wt. 991-6 17 June

MINIATURE RESISTANCE THERMOMETER (Cont'd)

S/120/63/000/002/041/041



- 1 - insulated core;
- 2 - sensing element assembly

element [see illustration] is an annealed platinum wire 0.05 mm in diameter wound with 0.1 pitch on a helical platinum core 0.2 to 0.3 mm in diameter. The core is insulated with a thin film. There is no thermal stress, because the core and the winding are made of the same material. The specific heat of the thermometer is a function of the properties of the insulating film. The thermometer is sealed in a copper housing filled with dry helium (10 to 150 mm Hg). A variant designed and tested at the Institute had a core insulated with a BC-2 glue film polymerized for several hours at 140°C. The thermometer was 12 mm in length and 4 mm in diameter, weighed - 0.5 g.

Card 2/3

AID No. 991-6 17 June

MINIATURE RESISTANCE THERMOMETER (Cont'd)

S/120/63/XC/002/0.1/0.1/

and had a resistance at the triple point of water of $R_0 = 38,830$ ohm. It was periodically cooled by liquid nitrogen at -195°C and heated by water at $+100^\circ\text{C}$ for two months. After one week a stable resistance with an accuracy of $\pm (5-10) \cdot 10^{-4}$ ohms was established, which corresponds to a temperature of 0.003 to 0.005°C . The dimensions of the thermometer could be further reduced and its stability improved by using improved heat-resistant materials for core insulation. The frameless design of the thermometer permits a wide variation in shape.

[AS]

Card 3/3

AZBEL', M.Ya.; VORONEL', A.V.; GITERMAN, M.Sh.

~~1. Institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy.~~
Theory of the critical point. Zhur. eksp. i teor. fiz. 46
no.2:673-676 F '64. (MIRA 17:9)

1. Institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy.

Author: V. V. ...

TITLE: Hydrostatic effects at the ...
... Fiziki, v. 48, no. 5, 1965;

Card 46

ASSOCIATION: none

SUBMITTED: 0000064

NO. OF REV: 000

ENCL: 00

STAMP: 006

HUB CODE: ME, GP

Card 2/2

39500

S/056/62/043/002/051/053
B108/B102

5.4800

AUTHORS: Bagatskiy, M. I., Voronel', A. V., Gusak, V. G.
TITLE: Measurement of the specific heat C_v of argon near its critical point
PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 2(8), 1962, 728-729

TEXT: The dependence of the specific heat of argon on the temperature near the critical point was studied with the aid of a technique developed by A. V. Voronel' and P. G. Strelkov (PTE, 6, 111, 1960). Near the critical point (transition from the two-phase system liquid-vapor into a homogeneous system) at a density of 0.521 g/cm^3 , C_v tends to infinity. The limit of the difference between the specific heats of the heterogeneous and homogeneous phases can be regarded as a jump in specific heat. It amounts to 20 cal/mole-deg . The jump occurred at 150.5°K (critical temperature 150.7°K). There are 2 figures.

Card 1/2

Measurement of the specific heat C_v ...

S/056/62/043/002/051/053
B108/B102

ASSOCIATION: Nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh
i radiotekhnicheskikh izmereniy (Scientific Research
Institute of Physicotechnical and Radiotechnical
Measurements) +

SUBMITTED: June 1, 1962

Card 2/2

L 28074-66 EWT(n)/ETC(n)-6 RM/WW/JW

ACC NR: AF6014028

SOURCE CODE: UR/0056/56/050/004/0897/0904

AUTHOR: Voronel', A. V.; Gorbuncva, V. G.; Chashkin, Yu. R.;
Shchekochikhina, V. V.

58
56
B

ORG: All-Union Institute of Physicotechnical and Radiotechnical
Measurements (Vsesoyuznyy Institut fiziko-tekhnicheskikh i radio-
tekhnicheskikh izmereniy)

TITLE: Specific heat of nitrogen near the critical point

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50,
no. 4, 1966, 897-904

TOPIC TAGS: nitrogen, specific heat, critical point, temperature
dependence, thermogram

ABSTRACT: In connection with the discussion concerning the analytic
form of the specific heat singularity near the critical point
(M. E. Fisher, Phys. Rev., 136, A1599, 1964; M. E. Fisher, J. of
Mathem. Phys., 5, 944, 1964), certain measurement results of the
specific heat of nitrogen near the critical point are presented for
an extended temperature range within 0.01C of T_c . The experimental
errors are less than 5%. The data obtained indicate a logarithmic

Card 1/2

L 28074-66

ACC NR. AP6014028

2

dependence of the specific heat on temperature for $T \rightarrow T_c$ and $T < T_c$; the slopes of curves are the same from the left and right, that is, for $T > T_c$ and $T < T_c$, and the finite change

$\Delta C_v = \lim (C_v^+ - C_v^-)$ for $|T - T_c| \rightarrow 0$ remains the same, in agreement with an earlier work M. Ya. Azbel, A. V. Voronel', M. Sh. Giterman, ZhETF, 46, 673, 1963). Since the value of the T_c is important for interpreting the results, its value has been determined with an accuracy of 0.001C by a method similar to the thermographic one. In this connection it has been found that by using the results of a previous paper (Yu. R. Chashkin, V. G. Gorbunova, A. V. Voronel', ZhETF, 49, 433, 1965), the total amount of impurities in the gas can be determined with greater reliability accurate to 0.02%. The authors thank V. Vaks and A. Larkin for discussing certain problems. Orig. art. has: 6 figures, 2 formulas, and 1 table. [Based on authors' abstract]

[NT]

SUB CODE: 20 /

SUBM DATE: 03Nov65/

ORIG REF: 009/

OTH REF: 010

Card

2
1/2 cc

AUTHOR: Voronel', A.V.

S/126/60/009/02/003/053

E111/E335

TITLE: Contribution on a Thermodynamic Scale for High Pressures²¹

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 2, pp 174 - 177 (USSR)

ABSTRACT: The author points out that pairs of substances can be found whose melting-point curves cross on the pressure-temperature plane (at the intersection both melt at the same temperature and pressure). The figure shows such curves for tin, phosphorus, carbon tetrachloride, silicon tetrachloride, phenol, chloroform and argon. The pressure in an apparatus where melting of two substances occurs simultaneously could thus be considered as a reference pressure to which a value obtained by calculation from the melting-point curve equations could be assigned. For this the author recommends one of his forms (Ref 2) of Simon's equation. This has a constant whose physical significance is clear from Salter's (Ref 3) work. He shows an arrangement of the equation from which all required parameters and pressure values can be found by

Card1/2



S/126/60/009/02/003/033
E111/E335
Contribution on a Thermodynamic Scale for High Pressures

successive approximations from measurements of temperature (not pressure directly). The validity of the method depends on the applicability of Simon's equation, which is wide; it does not depend on possible variations of the constant of this equation along the melting-point curve and this variation can be studied by choosing a number of triangles shown in the figure. There are 1 figure and 9 references, 6 of which are Soviet and 3 English.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut
Komiteta standartov, mer i izmeritel'nykh priborov
(All-Union Scientific Research Institute of the Committee
for Standards, Measurements and Measuring Instruments)

SUBMITTED: July 21, 1959

Card 2/2

BAQATSKIY, M.I.; VORONEL', A.V.; GUSAK, V.G.

Measurement of the heat capacity C_v of argon in the immediate vicinity of the critical point. Zhur. eksp. i teor. fiz. 43 no.2: 728-729 Ag '62. (MIRA 16:6)

1. Nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy.

(Argon--Thermal properties)

VORONEL', A.V.; STRELKOV, P.G.

Method for measuring the heat capacities of condensed gases above
their boiling point. Prib. i tekhn. eksp. no.6:111-112 N-D '60.

(MIRA 13:12)

1. Nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i
radiotekhnicheskikh izmereniy.

(Heat capacity)

(Gases, Compressed)

ACCESSION NR: AP4019235

S/0056/64/046/002/0673/0676

AUTHOR: Azbel', M. Ya.; Voronel' A. V.; Gitterman, M. Sh.

TITLE: Contribution to the theory of the critical point

SOURCE; Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 673-676

TOPIC TAGS: critical point, free energy, equation of state, co-existence curve, phase equilibrium, free energy, specific heat, singularity, critical volume

ABSTRACT: In view of the discrepancy with ordinary theory displayed by the experimental results of the VNIIFTRI Thermodynamics Laboratory (M. I. Bagatskiy, A. V. Voronel', V. G. Gusak, ZhETF, v. 43, 728, 1962; A. V. Voronel', Yu. R. Ohashkin, V. A. Popov, V. G. Simkin, ZhETF, 45, 828, 1963), where a logarithmic singularity was observed for the temperature dependence of the specific heat C_v near the critical volume, the authors propose a new theory in which the form of the free energy near the critical point agrees with these experimental data. In both the existing and modified theories the order of the smallest nonvanishing derivative of the pressure with respect to the volume at the critical point determines

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ACCESSION NR: AF4019235

uniquely the form of the phase-equilibrium point near the critical point, namely proportionality of the relative temperature to the relative volume quared. Several ways of checking the consequences due to the presence of the singularity at the critical point will be treated in a future article. Orig. art. has: 6 formulas.

ASSOCIATION: Institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy (Institute of Physicotechnical and Radio Technical Measurements)

SUBMITTED: 12Jul63

DATE ACQ: 27Mar64

ENCL: 00

SUB CODE: PH

NO REF SOV: 004

OTHER: 001

Card 2/2

VORONEL', A.V.; GITERMAN, M.Sh.

Hydrostatic effect near the critical point of a liquid. Zhur.
eksp. i teor. fiz. 39 no.4:1162-1163 0 '60. (MIRA 13:11)

1. Institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy.
(Liquids) (Phase rule and equilibrium)

VORONEL', A.V.

Reduced melting points of the elements considered as a periodic
function of the atomic numbers. Zhur. fiz. khim. 31 no. 5:1177-1178
My '57. (MIRA 10:11)

1. Moskovskiy gosudarstvennyy pedinstitut.
(Melting points) (Periodic law)